Data Governance and Data Quality: Applying GS1 Best Practices to USAID/GHSC-PSM

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Agenda

- Introduction and Approach to Today's Discussion

- Terminology and Definitions

- GS1 Data Quality Principles

- Data Quality Fundamentals

- Data Governance Best Practices

Roadmap for today's discussion

1. Establish baseline understanding of key concepts and definitions

2. Define core concepts in GS1 data quality and data governance

3. Establish USAID structure

   – Functional units

   – Data integrity group approach

4. Discuss application of GS1 data governance best practices to USAID structure and related efforts

   – Data integrity (alignment and change management)

     • Product master/core data
     • Location/party master/core data

   – Aid recipient storefront: product versus item

Terminology and Background Information

OBSERVATION:

GHSC-PSM mixing concepts related to identifiers, classification, and attributes

- Example 1 from GHSC-PSM materials:

  – "Uniquely identifying commodities is crucial to the GHSC-PSM solution, but it also has a more far-reaching impact on the global international development community. One desired feature of ARTMIS is that it will have the capability to allow for coordination of commodity procurement with the supply chains of other donor organizations. In order to satisfy this requirement, ARTMIS must be able to track GHSC-PSM procurement activities using the same commodity identification attributes as other donor organizations."

- This excerpt is actually discussing needs for classification (not identification or attributes)

OBSERVATION: *(continued)*

GHSC-PSM mixing concepts related to identifiers, classification, and attributes

- Example 1 from GHSC-PSM materials:

  - "For several reasons not all suppliers support either GS1 product classification standards at the current time. ARTMIS must accommodate products to which the manufacturer has not assigned a GS1 standard product code."

- This excerpt is actually discussing identification not (classification or attributes)

Clarifying GS1 Terminology

- **GS1 Identifiers**:
  - Global Trade Item Number (GTIN) (product)
  - Global Location Number (GLN) (party/location)

- **Attributes**: core data set associated with an identifier
  - Examples of GTIN attributes: brand name, unit of use, weight, height
  - Examples of GLN attributes: address, phone number,

- **Classifications**: product types
  - There are numerous classification systems in existence, and the Global Data Synchronization Network (GDSN) supports most of them:
    - Global Product Code (GPC) = GS1's classification system
    - United Nations Standard Products and Services Code (UNSPSC) = UN's classification system managed by GS1 US
    - RxNorm
    - Global Medical Devices Nomenclature (GMDN) -- etc.
  - "Product classification" is a GDSN product attribute.
  - More than one classification code can be stored for each GTIN.

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Correct High Level Relationships

- GTINs and GLNs are the identifiers

  - Attributes are standardized data elements defined for each GTIN/GLN

    - Classification codes are GTIN attributes (because they describe the product)

Foundational Discussion of GTIN and GDSN Core Concepts

GTINs

- Manufacturers ("brand owners") assign GTINs to their products

  - GTINs are assigned to each orderable packaging level

  - i.e., if products can be ordered by the each, the case, or the pallet, then a unique GTIN is assigned to the each, to the case, and to the pallet

- Manufacturers ("brand owners") define the product data associated with each GTIN they assign

  - AKA – core data; master data; attributes; data elements; etc.

  - Standardized list of attributes/data elements

GDSN

- Historical problem leading to development of GDSN:

  - No authoritative database within organizations and across trading partners

    - Multiple versions of the same data
    - Different data formats
    - No way to efficiently and effectively update everyone and every system

- GDSN purpose:
  1. Standardize attributes

  2. Establish an authoritative database

  3. Real-time automated update and sharing

Standardize Attributes:
GDSN Attributes

- What are standardized attributes?

  - Identified data element

  - Standardized name for that data element

  - Standardized attribute definition

  - Standardized data format

- GS1 Global Standards Management Process (GSMP) standardizes attributes based on trading partner <u>needs</u> to achieve collaborative commerce

  - What is needed can vary based on:
    - Different industries
    - Different supply chain roles
    - Different business processes

- *There are a total of 2,836 standard GS1 attributes in the GDSN today*

Does that mean GDSN trading partners are exchanging 2,836 attributes for each GTIN? NO

1. Data recipients inform their suppliers of the attributes they require

   – On average, around 75–100 total attributes (but can be much more or much less depending on trading partner)

   – See GS1 US Attribute Explorer to view attribute requirements of various companies

2. Data sources publish one "super-set" of attributes for each GTIN combining all of the attributes their trading partners require

   – Data recipient requirements can have significant overlap

3. Data recipients then extract only the attributes they want

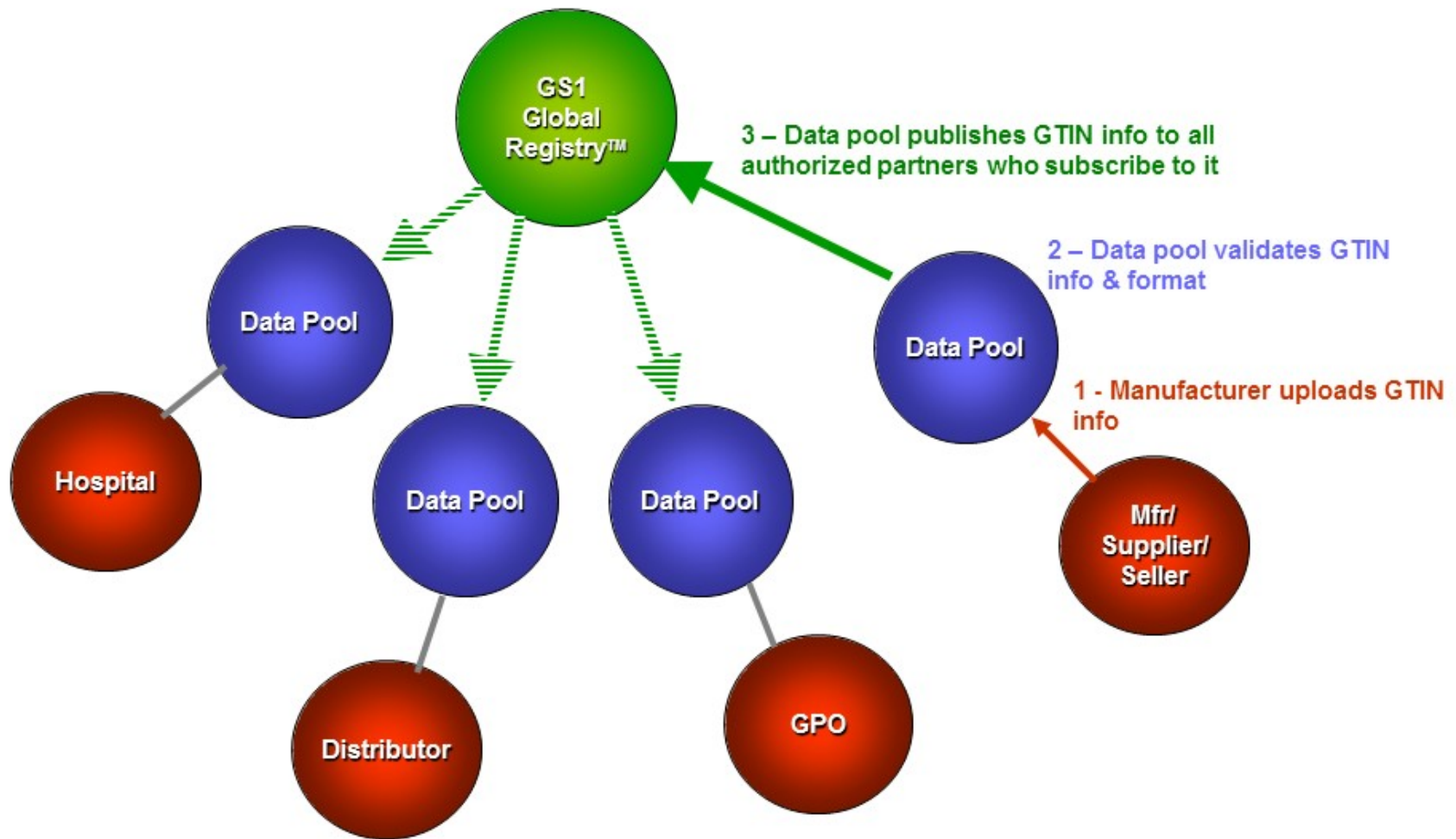   – Can extract themselves or have their data pool do it for them

Establish authoritative data sources: GDSN-certified data pools

- Authoritative databases in which trading partners manage standardized GTIN attributes

- GDSN is a <u>global</u> solution so all GDSN-certified data pools are connected through GDSN

- Trading partners can use any GDSN-certified data pool they want

  - They do not need to be part of the same data pool

- "Data sources" and "data recipients" use data pools:

  - Data sources = manufacturers/brand owners who publish a set of attributes for each GTIN they assign

  - Data recipients = demand side partners who subscribe to their suppliers' GTIN attributes

Real-time automated update and sharing:
GS1 Global Registry and GDSN Data Sync

- **GS1 Global Registry:** a directory service that connects GDSN-certified data pools

    - Directory of data pool location (network address) for every GTIN and data recipient in the GDSN

    - Only accessible by GDSN-certified data pools

- **GDSN Data Synchronization:** GDSN operates data pool to data pool

    - Data recipients (through their data pool) send a "subscription request" to their suppliers for the GTINs they need

    - Data sources (through their data pool) accept subscription and publish GTIN attributes to the data recipient (through their data pool)
        - Data recipients then pull the data into their product master and/or systems as desired

    - Whenever data sources update GTIN information in their data pool, the data pool publishes the updated GTIN attributes to all data recipients who subscribe to that GTIN (through their data pool)

GDSN in Action *

GS1 Global Registry™

3 – Data pool publishes GTIN info to all authorized partners who subscribe to it

2 – Data pool validates GTIN info & format

1 - Manufacturer uploads GTIN info

Data Pool

Hospital

Data Pool

Data Pool

Data Pool

Distributor

GPO

Mfr/ Supplier/ Seller

* GS1 US Healthcare Supplier Tool Kit https://www.gs1us.org/documents/command/core_download/entryid/311

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Data Capture Recommendations for USAID/GHSC-PSM

- Several different levels of capability in the USAID/GHSC-PSM supplier base mean GHSC-PSM will need to accommodate several different data capture methods

- Recommendations:

  – For suppliers using GDSN = GHSC/PSM should use GDSN to receive their information

  – For suppliers not using GDSN = GHSC/PSM should provide method(s) for those suppliers to submit their GTIN/product data to GHSC-PSM (e.g., web portals, spreadsheets)

    - Any/all non-GDSN methods by which GHSC-PSM receives product information should still:
      – Require the same data set for every product (regardless of identifier used) and
      – Leverage same meta-data formatting and requirements as GDSN (to maintain alignment)

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Data Quality and Data Governance

Two different challenges with product data

- PROBLEM 1:
  - **Different/multiple versions** of data among trading partners and within an organization
  - GS1 Solution = GDSN *(discussed above)*

- PROBLEM 2:
  - **Incorrect** data (data does not match physical product)
    - Data can originate from several sources, including external vendors and internal departments.
    - Without a robust business process in place, the quality of data can deteriorate as it flows through the supply chain.
  - GS1 Solution = GS1 Member Organization (MO) Data Quality Program (best practices)

Data Quality definition

- Trading partners *define* data quality as having consistent, complete, accurate, standards-based, time-stamped data.

- Trading partners *measure* product data quality as "*electronic data exchanged equals physical data*."

Guiding Principles

- Organizations with successful data quality programs embrace the following guiding principles:

    - Information is an asset and should be viewed and managed as such.

    - Quality data is achieved by applying management processes, methods, tools, and best practices.

    - Data governance is a shared responsibility.

    - Data governance is a business process, not a project.

Data Quality in an organization

- Data quality relies on an overall program within an organization that includes:

    – Executive leadership support

    – Commitment to standards-based data

    – Processes to validate that consistent, complete, and accurate information is being captured and used for both internal processes and external sharing

GS1 Data Quality Programs

- Recognize three primary elements as essential for a company's internal data quality program:

    – Data governance programs

    – Education and training (on GS1 Standards)

    – Attribute audits

EXAMPLE: GS1 US National Data Quality Program

- The is designed to validate that an organization's internal data governance process is documented and adhered to, and to demonstrate institutional knowledge of GS1 Standards, such as the GTIN Allocation Rules and the GS1 Package Measurement Rules, by those individuals responsible for quality data.

- **Pillar 1: Data Governance Process** – an assessment designed to determine the degree to which people, processes, and procedures are in place within an organization to validate that quality data is maintained and shared across all necessary business entities.

- **Pillar 2: Education and Training Protocol** – a series of assessments designed to verify the comprehension and proper application of the GS1 System of Standards within the organization.

- **Pillar 3: Attribute Audit** – an assessment of select key product attributes to validate that the attribute information being shared with trading partners matches the physical product (also known as a "physical audit").

Data Governance

- Key focus for this effort is data governance – we will focus on data governance for the remainder of this deck.

- Data governance programs manage the actions, methods, timing, and responsibilities for supporting master data within an organization.

- Data governance programs serve an important function within an enterprise:

  - Setting the parameters for data management and use

  - Creating processes for resolving data issues

  - Enabling business users to make decisions based on high-quality data

- A solid data governance program formalizes accountability for data management across the organization and ensures that the appropriate people are involved in the process.

Data Governance Best Practices

- Establish a single authoritative data source for GTIN/product data within your organization.

- Use GDSN to populate the authoritative data source with GDSN data whenever possible.

  - Any alternative data capture vehicles (e.g., portal, spreadsheet, etc.) should require the same GDSN data set and meta-data rules

- Use the authoritative data source to feed all systems across the organization that use and rely on product information.

- Put policies and procedures in place to prevent users from <u>manually editing</u> the product attributes <u>in IT systems</u>.

  - Instead, establish a process by which data issues discovered in any system are reported to a designated data quality group/person for resolution.

- Establish a formal data quality issue resolution process with suppliers (e.g., contact person, reporting mechanisms, timeline for response).

  - GDSN data should be updated only through the GDSN. Once the supplier resolves the data issue, the supplier needs to update it in GDSN and then republish it through GDSN.

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